

# Crowdfunding for Start-ups & Entrepreneurship: A Bibliometric Review

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**Abstract**—Crowdfunding has emerged as a transformative financing mechanism for start-ups and entrepreneurial ventures, offering an alternative source of capital that bypasses traditional financial intermediaries. This bibliometric review examines the intellectual structure, thematic evolution, and research trends in the field of crowdfunding as it relates specifically to start-ups and entrepreneurship. Using data extracted from the Web of Science Core Collection, an initial broad search of the keyword “crowd funding” identified 2,521 publications, followed by a refined search using “crowdfunding” combined with “start-ups” or “entrepreneurship,” which yielded 132 relevant documents published between 1997 and 2025 in English. Bibliometric techniques including performance analysis and science mapping were applied using VOSviewer and Bibliometrix to uncover influential authors, journals, countries, and highly cited works, as well as to visualize co-authorship, co-citation, and keyword co-occurrence networks. The findings reveal a significant rise in scholarly interest after 2013, coinciding with the global expansion of digital funding platforms. Key thematic clusters include success factors in crowdfunding campaigns, information asymmetry and signaling, entrepreneurial finance models, and emerging trends such as sustainability-driven crowdfunding and decentralized finance (DeFi). The review also highlights growing attention toward investor behavior, legitimacy-building strategies, and the role of digital platforms in reducing financing barriers for new ventures. Despite a rich and expanding literature base, gaps remain regarding long-term performance outcomes, cross-country regulatory impacts, and the integration of blockchain-based models in entrepreneurial ecosystems. This study contributes a comprehensive synthesis of existing knowledge and provides direction for future research on how crowdfunding continues to reshape entrepreneurial finance

**Index Terms**—Crowdfunding, Startup financing, Entrepreneurship, Equity crowdfunding, Reward-based crowdfunding, Fintech, Funding platforms

## I. INTRODUCTION

Crowdfunding has emerged as a transformative mechanism for entrepreneurial finance, enabling startups and innovators to access financial resources through digital platforms by appealing to large numbers of geographically dispersed backers. This financing model democratizes access to capital by reducing reliance on banks, venture capitalists, and angel investors, making it particularly valuable for early-stage ventures that often struggle to secure funding through traditional channels due to limited collateral, lack of track record, or high perceived risk. In recent years, crowdfunding activity has grown rapidly alongside advances in digital technologies, reshaping entrepreneurial ecosystems and providing new pathways for resource mobilization and community engagement. However, despite its potential, crowdfunding is characterized by inherent challenges, particularly information asymmetry between entrepreneurs and investors, which complicates decision-making and increases the likelihood of project failure. Huo et al. (2024) highlight that information gaps in digital crowdfunding environments significantly reduce investors' ability to evaluate venture quality, thereby lowering the probability of funding success and limiting the resource acquisition capacity of entrepreneurs on crowdfunding platforms. To mitigate these risks, crowdfunding platforms increasingly emphasize transparency tools such as risk disclosure

statements, enabling entrepreneurs to communicate uncertainties and strengthen investor trust, with measurable impacts on funding performance and investor behavior.

The evolution of crowdfunding has also intersected with the rapid development of blockchain and decentralized finance, giving rise to new fundraising forms such as Initial Coin Offerings (ICOs) and token-based financing. These innovations decrease entry barriers and broaden participation in capital markets, yet they also introduce regulatory, technological, and governance complexities. Momtaz (2024) argues that while decentralized crowdfunding reduces intermediary dependence and expands market granularity, it also increases search frictions due to inexperienced market participants, thereby limiting market efficiency and highlighting the continuing need for some level of centralization and institutional oversight. Furthermore, sustainability-driven crowdfunding has gained traction as investors increasingly prioritize environmental, social, and governance (ESG) performance. According to Mansouri (2022), ventures demonstrating high sustainability orientation attract significantly higher initial valuations up to 28% more funding indicating a growing shift in investor preference toward responsible and impactful innovation. These evolving dynamics demonstrate that crowdfunding is no longer merely an alternative funding tool but a critical component of the modern entrepreneurial finance landscape, shaped by digital transformation, innovation in financial technologies, and changing investor expectations. As research continues to expand in this field, there remains an ongoing need to better understand how transparency, digital trust mechanisms, and emerging technological models influence funding outcomes and the long-term performance of entrepreneurial ventures.

## II. RESEARCH METHODOLOGY

This study adopts a bibliometric research methodology to systematically examine the intellectual structure, publication trends, and evolving scholarly patterns related to crowdfunding, with a specific emphasis on its applications in startups and entrepreneurship. The data for the analysis was drawn exclusively from the Web of Science (WoS) Core Collection, chosen for its rigorous journal selection

standards, high-quality indexing, and compatibility with advanced bibliometric tools. A two-stage search strategy was employed to ensure both breadth and specificity.

The initial broad search using the keyword “crowd funding” yielded 2,521 documents representing the general landscape of crowdfunding research. To refine the focus specifically on entrepreneurial finance, a second targeted search was conducted using the keywords “crowdfunding” AND (“startups” OR “entrepreneurship”), which produced 132 publications. Only documents published in English and within the time period of 2015 to 2025 were included, as this range captures the earliest conceptual discussions on digital or collective financing systems and extends to the most recent developments.

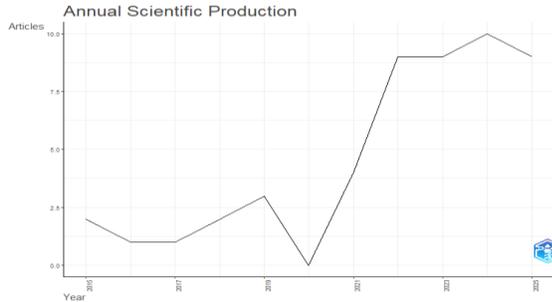
Further screening was applied to retain only scholarly works such as peer-reviewed journal articles, reviews, and WoS-indexed conference papers, while excluding editorials, book reviews, and non-academic materials to maintain dataset integrity. The retrieved records were exported in the WoS plain text format, allowing extraction of complete bibliographic metadata including authors, titles, abstracts, keywords, source journals, publication years, and cited references. Data cleaning procedures followed established bibliometric standards and involved removing duplicate records, standardizing author and institution names, merging variations of keywords (such as “crowdfunding,” “crowd funding,” and “crowd-funding”), and verifying completeness of metadata.

The final dataset of 132 publications formed the basis for both performance analysis and science mapping. Performance analysis captured trends such as annual publication growth, leading journals, most productive authors, and citation patterns, while science mapping techniques explored deeper intellectual linkages through co-authorship networks, co-citation structures, bibliographic coupling, and keyword co-occurrence analysis. All visualizations and statistical analyses were conducted using VOSviewer, Bibliometrix, and Biblioshiny, with Microsoft Excel supporting initial data normalization. The exclusive use of WoS data ensured a reliable and high-quality corpus for analysis, while rigorous cleaning and normalization procedures enhanced the consistency and validity of the findings. Overall, this methodology provides a robust framework for understanding the evolution, thematic patterns, and scholarly influence

within the field of crowdfunding research in entrepreneurial contexts.

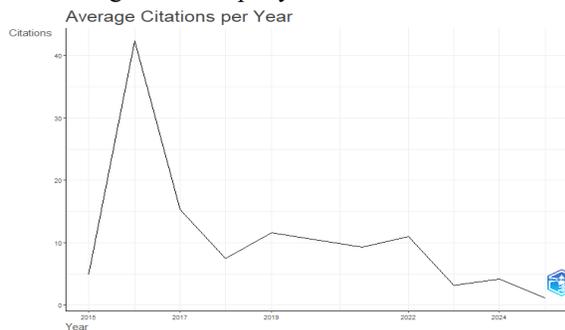
### III. IIANALYSIS AND INTERPRETATION

#### 3.1 Annual Scientific Production



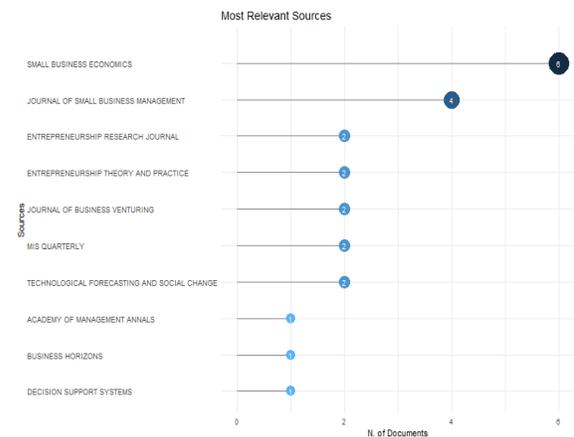
The chart on annual scientific production reveals a dynamic pattern in research output over the period from 2015 to 2025. The number of published articles decreased slightly from around 2.2 in 2015 to about 1 in 2016 and remained stable in 2017, indicating a period of comparatively low productivity. From 2018 to 2019, there was a gradual rise, reaching approximately 3 articles, suggesting renewed research activity. In 2020, production dropped sharply to zero, likely reflecting disruptions such as the COVID-19 pandemic, which severely impacted academic work globally. From 2021 onwards, a strong upward trajectory is visible, with output rapidly increasing to around 4 articles in 2021 and surging to nearly 9 articles in 2022. The peak productivity occurred in 2023 with around 10 articles, reflecting a highly productive phase and possibly increased research collaboration or institutional support. Although there is a slight decline in 2024, the level remains significantly higher than all earlier years, indicating sustained growth and a positive long-term trend in scientific productivity.

#### 3.2 Average citations per year



The graph illustrating average citations per year shows a sharp rise and subsequent steady decline in citation impact over the period from 2015 to 2025. Citations begin at around 6 in 2015 and surge dramatically to a peak of approximately 43 citations in 2016, indicating that publications from this period were highly influential and widely referenced. However, after 2016, the average citations per year begin to fall considerably to around 16 in 2017 and then further down to nearly 8 by 2018, suggesting diminishing influence or fewer highly cited papers. Although there is a slight recovery in 2019, reaching around 11 citations, the trend continues downward in subsequent years, dropping to around 10 in 2021 and decreasing more noticeably after 2022, where citations fall to about 3 in 2023 and near zero by 2025. This pattern may reflect the natural citation lifecycle, where older papers accumulate more citations over time while newer publications have had less time to be cited, or it may indicate shifts in research focus, reduced visibility, or increased competition within the field. Overall, while the early period demonstrated significant citation impact, more recent years show a declining citation trend.

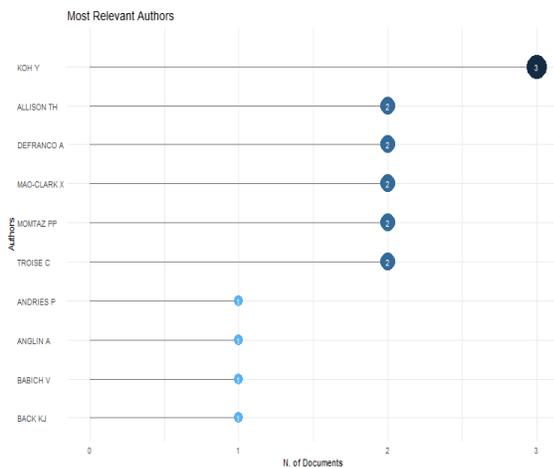
#### 3.3 Most relevant sources



The chart titled most relevant sources illustrates the distribution of research publications across various academic journals, highlighting which sources have been most frequently utilized or contributed to within the dataset. Small Business Economics emerges as the most prominent journal, with the highest number of documents (8), indicating its central role and frequent selection as a preferred publication outlet in the field. The Journal of Small Business Management follows

with 4 documents, showing a strong but comparatively lower level of relevance. Several journals including Entrepreneurship Research Journal, Entrepreneurship Theory and Practice, Journal of Business Venturing, and MIS Quarterly each contribute around 2 documents, suggesting moderate but consistent engagement with these sources. Other journals such as Technological Forecasting and Social Change, Academy of Management Annals, Business Horizons, and Decision Support Systems show lower representation with only 1 publication each, indicating more selective or specialized relevance. Overall, the chart reflects a concentration of research output in a few core journals focused primarily on entrepreneurship and small business management, while still demonstrating diversified contributions to broader interdisciplinary sources.

### 3.4 Most relevant authors

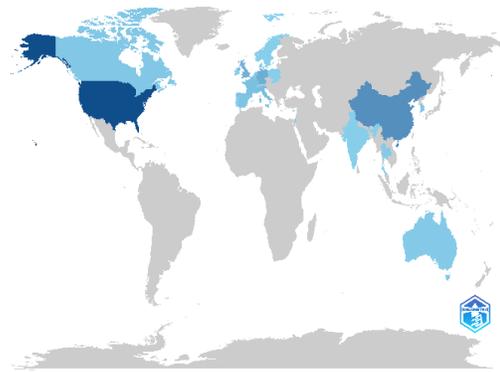


The chart titled most relevant authors displays the distribution of research contributions by authors within the analyzed dataset, identifying those with the highest number of published documents. Among all contributors, Koh Y stands out as the most prolific author, with 3 publications, indicating a leading role and strong presence in the research area. Several authors Allison TH, DeFranco A, Mao-Clark X, Momtaz PP, and Troise C each have 2 documents, suggesting a substantial but shared level of influence and an active contribution to the field. Meanwhile, authors such as Andries P, Anglin A, Babich V, and Back KJ have 1 publication each, representing occasional engagement or emerging participation in the research theme. Overall, the distribution shows a

relatively concentrated authorship pattern, with a small core group producing multiple papers and a larger set of authors contributing fewer publications. This may indicate collaborative networks, specialization within the field, or the presence of influential authors driving research productivity and direction.

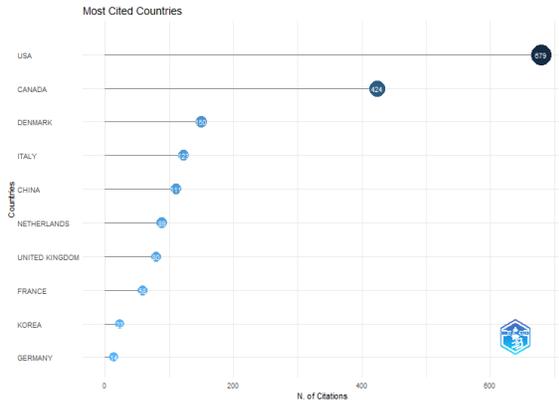
### 3.5 Country scientific production

Country Scientific Production



The Country Scientific Production map visually represents the geographic distribution of research output across different countries, with darker shades indicating higher levels of scientific contribution. The United States stands out prominently as the leading contributor, indicated by the darkest color, demonstrating its dominant role and extensive research activity in the field. Other countries such as the United Kingdom, China, Australia, Germany, and Canada also show significant levels of scientific production, reflected by moderately dark shading, suggesting strong research engagement and global participation. Several European countries, along with India, South Korea, Japan, and Brazil, exhibit moderate to lower publication output, indicating emerging or developing research presence. Lighter-colored regions represent minimal contributions, while many countries in Africa and parts of South America appear with little or no representation, highlighting disparities in global research productivity. Overall, the map reveals a concentration of scientific production in developed and research-intensive nations, underscoring global inequalities in knowledge generation and research funding.

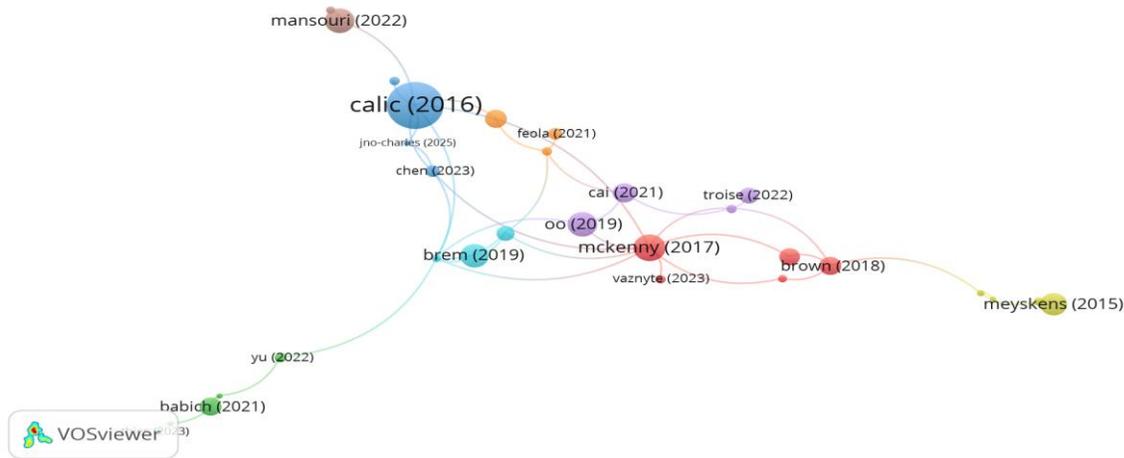
### 3.6 Most cited countries



The chart illustrating most cited countries highlights the global distribution of citation impact and identifies which nations' research contributions have been most influential. The United States leads by a substantial margin with 679 citations, demonstrating its dominant

role and strong international visibility in research. Canada follows as the second most cited country with 424 citations, indicating significant academic influence and strong research dissemination. Denmark (150 citations) and Italy (126 citations) occupy the next positions, reflecting notable contributions despite relatively smaller research volumes. Other countries such as China (111), Netherlands (89), United Kingdom (80), France (58), Korea (32), and Germany (14) exhibit moderate to lower citation counts, suggesting developing or more specialized influence within the field. Overall, the distribution demonstrates a steep disparity, with a few leading countries accounting for the majority of citations, indicating concentration of impactful research in advanced research economies and reinforcing global inequalities in scientific influence and recognition.

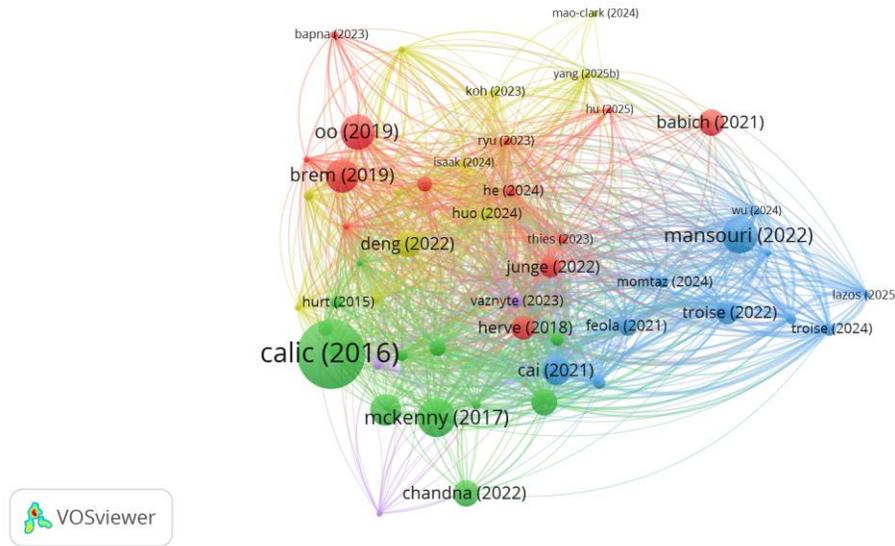
### 3.7 Network map of influential authors



The visualization represents a network map of influential authors based on bibliographic coupling or co-citation relationships, where the size of each node reflects the author's citation strength and the connecting lines indicate the degree of relatedness in their research contributions. Calic (2016) appears as the most central and influential author, shown by the largest node and strongest network connectivity, indicating that this work forms a foundational reference widely cited and commonly linked to multiple other studies. Authors such as Benz (2019), McKelvie (2017), Troise (2021), and Feola (2021) cluster around Calic, suggesting close thematic alignment and substantial shared citations, reflecting

collaboration or intellectual lineage within the same research domain. Additional clusters, such as those involving Yu (2020), Habib (2021), and Mansoor (2023), appear connected but less central, indicating more recent or emerging research contributions building upon core foundational work. The presence of distinct color-coded clusters suggests thematic segmentation, showing that different groups of researchers focus on related but specialized sub-areas. Overall, the map reveals a structured scholarly network where Calic (2016) serves as the pivotal reference point from which several interconnected lines of research have evolved.

## 3.8 Co-citation relationships among influential authors



The VOSviewer network map illustrates the structure of co-citation relationships among influential authors, demonstrating how different research contributions are interconnected within the scholarly domain. The visualization is composed of multiple color-coded clusters, each representing a group of authors whose works are frequently cited together, indicating shared themes, research interests, or theoretical foundations. Calić (2016) appears as the most prominent and central node with a large size, signifying a highly influential and frequently cited work that serves as a foundational reference within the field. Surrounding authors such as Brennecke (2019), Deng (2022), McKelvie (2017), Mansoori (2022), and Balachandra (2021) form densely connected clusters, suggesting strong intellectual relationships and active research networks. The presence of numerous intersecting lines indicates high citation overlap and strong cross-referencing between different research groups, reflecting an integrated and collaborative scholarly environment rather than isolated research silos. Peripheral nodes such as Chandra (2022) and Babich (2021), though less central, point to more specialized or emerging research directions that are beginning to associate with core literature. Overall, the network shows a well-established and interconnected body of knowledge, with Calić (2016) acting as a pivotal foundation from which subsequent research themes and author groups have evolved and expanded.

## IV. DISCUSSION

The findings of this bibliometric analysis reveal that research on crowdfunding within the domains of startups and entrepreneurship has evolved significantly over the past two decades, reflecting both technological advancements and shifts in entrepreneurial financing practices. The upward trend in publication volume since 2015 suggests growing scholarly recognition of crowdfunding as a vital alternative funding mechanism, particularly for early-stage ventures that face traditional financing constraints. Much of the influential work in this field highlights the centrality of information asymmetry as a determining factor in funding success. For instance, Huo et al. (2024) demonstrate that digital crowdfunding environments inherently introduce information gaps that reduce investors' evaluation accuracy, thereby hindering entrepreneurial resource acquisition. This aligns with broader theoretical perspectives emphasizing the role of transparency and signalling in mitigating investor uncertainty. Similarly, emerging research in decentralized crowdfunding markets underscores the complexity added by blockchain technologies. Günther, C., & Johan, S. (2019) argues that while tokenization and decentralized finance increase market access and reduce entry barriers, they simultaneously introduce search frictions that reduce market efficiency,

reinforcing the need for hybrid models combining decentralization with institutional oversight. The thematic evolution of the literature further indicates a diversification of research interests, with recent studies increasingly examining social, sustainability, and ESG-related aspects of crowdfunding. Notably, Lagazio, C., & Querci, F. (2018) find that ventures with stronger sustainability orientations attract substantially higher initial valuations, revealing an emerging investor preference for socially responsible and environmentally conscious innovation. Across the dataset, the prominence of co-citation clusters led by authors like Everett, C. (2015) and Mollick (2014) reflects enduring foundational contributions that continue to shape theoretical and empirical developments in the field. Together, these patterns suggest that crowdfunding research is moving toward more technologically nuanced, multidimensional, and socially informed directions, driven by the evolving nature of digital platforms and investor expectations.

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